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EXAMINER	
CORDRAY, DENNIS R	

ART UNIT	PAPER NUMBER
1731	

NOTIFICATION DATE	DELIVERY MODE
07/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/521,568

Applicant(s)

SATO, HARUYUKI

Examiner

Dennis Cordray

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6,7,11-14,16-20 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 6-7, 11-14, 16-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments, see pp 12-15, filed 5/8/2007, with respect to the rejections of claims 1-2, 7-10, 12-14, 16-20 and 22-24 under 35 U.S.C. 103(a) over Zhang et al in view of Anderson et al, and of claims 6 and 11 under 35 U.S.C. 103(a) over Zhang et al in view of Honig et al have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made in view of a modified interpretation of prior cited art. In addition, a new ground of rejection is made in view of Branham et al (US 2003/0022568 A1).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 1731

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 7, 11-12, 14, 16-20 and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Branham et al (US 2003/0022568 A1) as evidenced by Xiao et al (5747392).

Claims 1-2, 12, 14, 16-18 and 22-24: Branham et al discloses triggerable, water dispersible (water soluble) cationic polymers (corresponds to claimed copolymer A), their application to papermaking, and paper comprising the polymers (Abs; p 2, par 10; p 9, pars 68-71; p 11, par 87; p 19, par 165; p 21, par 188). The polymers can be terpolymers formed from cationic monomers, hydrophobic monomers and hydrophilic monomers. Suitable hydrophobic monomers include alkyl (meth)acrylates (e.g.-butyl acrylate, ethyl acrylate), which are examples of the recited alkyl (meth)acrylic acid monomers having solubility parameters of $20.5 \text{ (MPa)}^{1/2}$ or less. Suitable hydrophilic monomers include acrylamide, which has a solubility parameter of $26.6 \text{ (MPa)}^{1/2}$ or greater. Other suitable hydrophilic monomers include polyalkoxyl (meth)acrylates [e.g.-polyethyleneglycol (meth)acrylates] (p 3, pars 18-21), which are also monomers having solubility parameters of $20.5 \text{ (MPa)}^{1/2}$ or less. The disclosed terpolymers comprise the claimed monomers.

Branham et al discloses that the terpolymers comprise about 5 to less than 50 mole-% cationic monomer, from about 30 to about 90 mole-% hydrophobic monomer, and from about 10 to about 60 mole-% hydrophilic monomer (pp 5-6, par 39). The disclosed polymer composition significantly overlays the claimed composition. For

Art Unit: 1731

example, a polymer comprising 40 mole-% butyl acrylate, 40 mole-% acrylamide and 20 mole-% [2-(methacryloyloxy)ethyl]trimethyl ammonium chloride (the preferred cationic monomer) comprises weight percentages of about 45%, about 25% and about 30% respectively of each monomer. The calculated percentages lie within the claimed ranges.

Branham et al discloses that the triggerable, water dispersible cationic polymers comprise about 55% or more of a binder composition, which is typically applied to the substrate in an amount of about 5 wt-% up to about 65 wt-% of the total weight of the substrate (p 6, par 48; p 8, par 58), thus the triggerable, water dispersible cationic polymers can be present in an amount from about 2.75 wt-% to about 65% of the weight of the substrate.

Branham et al discloses wet wipes (paper) made using the polymers that contain a wetting composition in the amount from about 10 to about 400% by weight of the dry substrate (p 11, pars 86-87; p 12, par 89). The wetting composition comprises from about 0.01 up to about 3% of a wetting or cleaning agent (0.001% up to 12% of the weight of the dry substrate), such as a condensation product of a C₂-C₂₂ alcohol with 2-50 moles of ethylene oxide per mole of alcohol (corresponds to surfactant B) (p 15, pars 125-127 and 129). The ratio of copolymer to surfactant (claimed ratio A/B) can be calculated to be from about 99/0.002 to about 1/4, which significantly overlays the claimed ratio.

Because they are the same as the claimed surfactants, the disclosed wetting or cleaning agents are also water soluble. The terpolymer is water soluble, thus the mixture will be water soluble.

Branham et al does not disclose the paper quality improving effects. However, the disclosed wet wipe (paper) comprises substantially the same composition as the claimed paper quality improver, thus will have the claimed improved properties. Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claim 6: The acrylamide is a crosslinkable monomer (see Xiao et al, col 9, lines 39-42).

Claim 7: the surfactants disclosed by Branham et al are the claimed surfactants, thus inherently have the claimed HLB values or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed HLB values.

Claims 11 and 19: Branham et al discloses that the terpolymers can be combined with a co-binder polymer (corresponds to claimed polymer C) to form a binder composition. The co-binder can be present in an amount up to 45% by weight of the terpolymer. The co-binder polymer can alternatively be insoluble in water, which the Examiner construes as an implicit disclosure that the co-binder polymer can be water soluble in some embodiments (p 6, par 48). The co-binder has an average molecular

Art Unit: 1731

weight from about 500,000 to 200,000,000 (p 7, par 52). The ratio of (terpolymer + surfactant)/co-binder (claimed ratio $[A+B]/C$) significantly overlays the claimed range. For example, using a binder composition of 60% terpolymer and 40% co-binder, applied at the minimum disclosed amount of 5 wt-% of the substrate, and an amount of surfactant of 5 wt-% of the substrate, the ratio is calculated to be 4/1, which lies within the claimed range.

The viscosity of the co-binder is not disclosed; however, Branham et al discloses that the co-binder can reduce the shear viscosity of the terpolymer such that the combined composition is sprayable (pp 6-7, pars 48-49). Branham et al also discloses that the binder composition has a relatively low viscosity at high shear (p 3, par 16). One of ordinary skill in the art would have found it obvious to obtain a viscosity for the co-binder within the broadly-claimed range to meet the viscosity reducing criteria disclosed by Branham et al.

Claim 20: the disclosed terpolymer has an average molecular weight from about 10,000 to about 5,000,000, which overlays the claimed molecular weight. While the method of measuring the molecular weight is not disclosed, it would have been obvious to one of ordinary skill in the art that the disclosed molecular weight range significantly overlays the claimed range.

Claims 1-2, 6-7, 11-14, 16-20 and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zhang

Art Unit: 1731

et al (6417268) as evidenced by Xiao et al and Smook (Handbook for Pulp and Paper Technologists).

Claims 1-2, 12, 16-18 and 22-24: Zhang et al discloses a hydrophobically associative polymer (corresponds to co-polymer A) used as a retention and drainage aid in papermaking (Abs; col 4, lines 29-32; col 14, line 52 to col 16, line 63). The preferred polymer is at least a terpolymer comprising at least (1) a C₈-C₂₀ alkyl ester, (meth)acrylate esters being preferred monomers; (2) (meth)acrylic acid, an anionic monomer; and (3) acrylamide (col 5, lines 27-41; col 7, lines 46-53). The disclosed (meth)acrylate esters are claimed nonionic monomers having a solubility parameter of 20.5 or less, and the acrylamide has a solubility parameter of 26.6 or more. The (meth)acrylate ester is present in an amount up to 10 mole percent, (meth)acrylic acid in an amount from 1 to 99.9 mole percent and acrylamide in an amount from 1 to 99.9 mole percent (col 6, lines 19-35). Cationic monomers are also permitted in the amount from 1 to 99.9 mole percent (col 8, line 32 to col 9, line 25). The weight percent of the monomers can be calculated, as discussed in the previous Office Action, to reveal that disclosed polymer composition thus significantly overlays the claimed polymer A.

Zhang et al discloses a surfactant (corresponds to claimed surfactant B), which can be an ethoxylated alcohol or ethoxylated phenol with 5-20 ethylene oxide units per molecule (col 2, lines 32-36; col 10, lines 12-15 and 21-29). The amount of surfactant is dependent on the amount of hydrophobic monomer A used and can be present in an amount from 0.1 up to 10 wt-% of the solution. Zhang et al does not disclose the concentration of polymer in the solution, but does provide examples wherein the amount

Art Unit: 1731

of active polymer is 15% of the solution weight (col 12, Example 2; col 14, Example 5). Using the range recited for the surfactant and a 15% polymer solution, the ratio of polymer to surfactant (claimed ratio A/B) can be calculated to be from 150/1 to 1/1.5, which significantly overlays the claimed range. Since the disclosed surfactant is the same as the claimed surfactants, the disclosed surfactants are water soluble.

Zhang et al does not disclose the number of ethylene oxide units used to make the ethoxylated alcohol; however, one of ordinary skill in the art would have found it obvious to use the same range of ethylene oxide units as disclosed for the phenol.

Zhang et al does not disclose the paper quality improving effects. However, the disclosed composition is substantially the same composition as the claimed paper quality improver, thus will result in the claimed improved properties. Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claim 6: The acrylamide is a crosslinkable monomer (see Xiao et al, col 9, lines 39-42).

Claims 7: the surfactants disclosed by Zhang et al are the claimed surfactants, thus inherently have the claimed HLB values or, at least, it would have been obvious to one of ordinary skill in the art to obtain the claimed HLB values.

Art Unit: 1731

Claims 11 and 19: Zhang et al discloses a stabilizer, which can be a vegetable gum, polysaccharide, or a cellulose product (col 11, lines 20-22). While Zhang et al does not disclose the molecular weight or viscosity of the stabilizer, the broadly claimed range for molecular weight includes polysaccharides having from less than 10 to thousands of monomeric units. The broadly claimed values for viscosity range from the viscosity of water to very viscous compositions. Water soluble polysaccharides are available in a broad range of molecular weights and have a correspondingly broad range of solution viscosities. It is considered by the Examiner to have been obvious to one of ordinary skill in the art to use a polysaccharide within the claimed ranges as a functionally equivalent option.

The stabilizer is present in an amount from 0.05% to 10% by weight of the solution (col 2, lines 26-31; col 11, lines 30-34). Using the disclosed range for surfactant concentration and a 15% polymer concentration, the ratio of (polymer + surfactant)/stabilizer (the claimed ratio $[A+B]/C$) can be calculated to be from 500/1 to 1.51/1, which significantly overlays the claimed range.

Claim 13: Zhang et al discloses that the polymer can be used in an aqueous dispersion as a retention and drainage aid in a papermaking furnish (col 3, lines 17-23). The claimed papermaking speed is typical and would have been obvious to one of ordinary skill in the art (see Smook, p 324, Table 21-1).

Claim 14: Zhang et al does not disclose a paper made using the polymer and surfactant. However, because the composition is used as a retention and drainage aid in papermaking processes, it would have been obvious to make a paper or pulp sheet

Art Unit: 1731

from a furnish comprising the composition, thus obtaining a paper or pulp sheet comprising the polymer and surfactant.

Claim 20: Zhang et al discloses that the molecular weight of the polymer is from 10,000 to 10,000,000, which significantly overlays the claimed value. While the method of measuring the molecular weight is not disclosed, it would have been obvious to one of ordinary skill in the art that the disclosed molecular weight range significantly overlays the claimed range.

Claim 22: Zhang et al discloses that the polymer is water soluble (col 2, lines 52-62; col 5, lines 27-29), thus the polymer and surfactant are soluble (col 10, lines 5-8).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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